FOLDABLE DISPLAY APPARATUS

RELATED APPLICATION

[0001] This application claims priority from and the benefit of Korean Patent Application No. 10-2014-0057452, filed on May 13, 2014, which is hereby incorporated by reference for all purposes as if fully set forth herein.

BACKGROUND

[0002] 1. Field

[0003] Exemplary embodiments relate to a foldable display apparatus having a foldable main body.

[0004] 2. Discussion of the Background

[0005] For example, a flat panel display apparatus such as an organic light-emitting display apparatus needs to be modified flexibly, and to do this, the flat panel display apparatus may have a foldable structure for improving its portability.

[0006] The above information disclosed in this Background section is only for enhancement of understanding of the background of the inventive concept, and, therefore, it may contain information that does not form the prior art that is already known in this country to a person of ordinary skill in the art.

SUMMARY

[0007] Exemplary embodiments provide a foldable display apparatus.

[0008] Additional aspects will be set forth in the detailed description which follows, and, in part, will be apparent from the disclosure, or may be learned by practice of the inventive concept.

[0009] According to one or more embodiments of the present invention, a foldable display apparatus includes: a flexible display panel that may be folded; a case comprising a first case body and a second case body that are coupled to each other by a hinge; a first support plate coupled to the first case body to support a first side of the flexible display panel in connection with a folding operation and an unfolding operation of the case; and a second support plate coupled to the second case body to support a second side of the flexible display panel in connection with the folding operation and the unfolding operation of the case.

[0010] The foregoing general description and the following detailed description are exemplary and explanatory and are intended to provide further explanation of the claimed subject matter.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The accompanying drawings, which are included to provide a further understanding of the inventive concept, and are incorporated in and constitute a part of this specification, illustrate exemplary embodiments of the inventive concept, and, together with the description, serve to explain the principles of the inventive concept.

[0012] FIG. **1** is a perspective view of a foldable display apparatus according to an embodiment of the present invention.

[0013] FIG. **2** is an exploded perspective view of the foldable display apparatus of FIG.

[0014] FIGS. **3** and **4** are cross-sectional views of the foldable display apparatus of FIG. **1** in an unfolded state and a folded state.

[0015] FIGS. **5**A through **5**D are diagrams illustrating processes of changing the foldable display apparatus of FIG. **1** from the unfolded state of FIG. **3** to the folded state of FIG. **4**.

[0016] FIG. **6** is a diagram of a detailed structure of a flexible display panel in the foldable display apparatus of FIG. **1**.

DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS

[0017] In the following description, for the purposes of explanation, numerous specific details are set forth in order to provide a thorough understanding of various exemplary embodiments. It is apparent, however, that various exemplary embodiments may be practiced without these specific details or with one or more equivalent arrangements. In other instances, well-known structures and devices are shown in block diagram form in order to avoid unnecessarily obscuring various exemplary embodiments.

[0018] In the accompanying figures, the size and relative sizes of layers, films, panels, regions, etc., may be exaggerated for clarity and descriptive purposes. Also, like reference numerals denote like elements.

[0019] When an element or layer is referred to as being "on," "connected to," or "coupled to" another element or layer, it may be directly on, connected to, or coupled to the other element or layer or intervening elements or layers may be present. When, however, an element or layer is referred to as being "directly on," "directly connected to," or "directly coupled to" another element or layer, there are no intervening elements or layers present. For the purposes of this disclosure, "at least one of X, Y, and Z" and "at least one selected from the group consisting of X, Y, and Z" may be construed as X only, Y only, Z only, or any combination of two or more of X, Y, and Z, such as, for instance, XYZ, XYY, YZ, and ZZ. Like numbers refer to like elements throughout. As used herein, the term "and/or" includes any and all combinations of one or more of the associated listed items.

[0020] Although the terms first, second, etc. may be used herein to describe various elements, components, regions, layers, and/or sections, these elements, components, regions, layers, and/or sections should not be limited by these terms. These terms are used to distinguish one element, component, region, layer, and/or section from another element, component, region, layer, and/or section. Thus, a first element, component, region, layer, and/or section discussed below could be termed a second element, component, region, layer, and/or section without departing from the teachings of the present disclosure.

[0021] Unless otherwise defined, all terms (including technical and scientific terms) used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this disclosure is a part. Terms, such as those defined in commonly used dictionaries, should be interpreted as having a meaning that is consistent with their meaning in the context of the relevant art and will not be interpreted in an idealized or overly formal sense, unless expressly so defined herein.

[0022] FIG. **1** is a perspective view of a foldable display apparatus according to an exemplary embodiment of the present invention. The foldable display apparatus includes a flexible display panel **100** that may be flexibly curved and operate as a display unit. In other words, the flexible display panel **100** may be a self-emissive display device, such as an OLED display device. The flexible display panel **100** generally has a thin film transistor and a light-emitting device for